

Amendments to the Claims:

This Listing of Claims will replace all prior versions and listings of claims in the application.

Please amend claims 75, 83, 84, and 104 and add new claims 113-123.

Listing of Claims:

1 - 74. (Canceled)

75. (Currently Amended) A method for identifying an agent that binds to an adenine nucleotide translocator (ANT) polypeptide, comprising:

contacting a candidate agent with a host cell expressing a recombinant ANT polypeptide having at least 95% identity to an ANT polypeptide selected from the group consisting of human ANT1; as set forth in SEQ ID NO:31, human ANT2; as set forth in SEQ ID NO:32, and human ANT3; as set forth in SEQ ID NO:33, under conditions and for a time sufficient to permit binding of the agent to said recombinant polypeptide, wherein the host cell comprises a recombinant expression construct comprising at least one regulated promoter operably linked to a nucleic acid encoding the recombinant ANT polypeptide; and

detecting binding of said agent to the recombinant ANT polypeptide.

76. (Original) The method of claim 75 wherein the host cell is a prokaryotic cell.

77. (Original) The method of claim 76 wherein the prokaryotic cell is an *E. coli* cell.

78. (Original) The method of claim 75 wherein the host cell is a eukaryotic cell.

79. (Original) The method of claim 78 wherein the eukaryotic cell is selected from the group consisting of a yeast cell, an insect cell and a mammalian cell.

80. (Original) The method of claim 79 wherein the insect cell is selected from the group consisting of an Sf9 cell and a *Trichoplusia ni* cell.

81. (Original) The method of any one of claims 75-80 wherein the host cell lacks at least one isoform of an endogenous adenine nucleotide translocator.

82. (Original) The method of any one of claims 75-80 wherein host cell expression of at least one gene encoding an endogenous adenine nucleotide translocator isoform is substantially impaired.

83. (Currently Amended) A method for identifying an agent that binds to an adenine nucleotide translocator (ANT) polypeptide, comprising:

(a) culturing a host cell comprising a recombinant expression construct that comprises at least one regulated promoter operably linked to a nucleic acid encoding a recombinant ANT polypeptide selected from the group consisting of (i) a recombinant polypeptide comprising an amino acid sequence at least 95% identical to human ANT1 as set forth in SEQ ID NO:31, (ii) a recombinant polypeptide comprising the amino acid sequence of human ANT2 as set forth in SEQ ID NO:32, and (iii) a recombinant polypeptide comprising the amino acid sequence of human ANT3 as set forth in SEQ ID NO:33, to produce a biological sample that comprises said recombinant ANT polypeptide;

(b) contacting a candidate agent with the biological sample of (a) comprising at least one recombinant polypeptide having at least 95% identity to an ANT polypeptide selected from the group consisting of human ANT1, as set forth in SEQ ID NO:31, human ANT2, as set forth in SEQ ID NO:32, and human ANT3, as set forth in SEQ ID NO:33, under conditions and for a time sufficient to permit binding of the agent to said recombinant ANT polypeptide; and

(c) detecting binding of said agent to the recombinant ANT polypeptide.

84. (Currently Amended) A method for identifying an agent that interacts with an adenine nucleotide translocator (ANT) polypeptide comprising:

(a) culturing a host cell comprising a recombinant expression construct that comprises at least one regulated promoter operably linked to a nucleic acid encoding a recombinant ANT polypeptide having at least 95% identity to an ANT polypeptide selected from the group consisting of human ANT1 as set forth in SEQ ID NO:31, human ANT2

as set forth in SEQ ID NO:32, and human ANT3 as set forth in SEQ ID NO:33, to produce a biological sample that comprises said recombinant ANT polypeptide;

(b) contacting ~~a~~—the biological sample comprising a recombinant polypeptide having at least 95% identity to an ANT polypeptide selected from the group consisting of human ANT1, as set forth in SEQ ID NO:31, human ANT2, as set forth in SEQ ID NO:32, and human ANT3, as set forth in SEQ ID NO:33, with a detectable ANT ligand in the absence and in the presence of a candidate agent; and

(c) comparing binding of the detectable ANT ligand to the recombinant ANT polypeptide in the absence of said agent to binding of the detectable ANT ligand to the recombinant ANT polypeptide in the presence of said agent, and therefrom identifying an agent that interacts with an ANT polypeptide.

85. - 103. (Canceled)

104. (Currently Amended) An assay plate for high throughput screening of candidate agents that bind to at least one adenine nucleotide translocator (ANT) polypeptide, comprising:

an assay plate having a plurality of wells, each of said wells comprising at least one immobilized recombinant ANT polypeptide selected from the group consisting of human ANT1; comprising an amino acid sequence as set forth in SEQ ID NO:31, a human ANT1 variant comprising an amino acid sequence having at least 95% identity to the amino acid sequence set forth in SEQ ID NO:31, human ANT2; comprising an amino acid sequence as set forth in SEQ ID NO:32, and human ANT3; comprising an amino acid sequence as set forth in SEQ ID NO:33, ~~or a recombinant variant or fragment thereof, wherein said recombinant variant has at least 95% identity to the recombinant ANT polypeptide and wherein said fragment comprises at least 30 contiguous amino acid residues of the recombinant ANT polypeptide.~~

105 - 112. (Canceled)

113. (New) A method for identifying an agent that binds to an adenine nucleotide translocator (ANT) polypeptide, comprising:

- (a) contacting a candidate agent with a host cell expressing a recombinant ANT fusion protein that comprises an ANT polypeptide fused to at least one additional polypeptide sequence, wherein the fused ANT polypeptide has a sequence at least 95% identical to an ANT polypeptide selected from the group consisting of human ANT1 as set forth in SEQ ID NO:31, human ANT2 as set forth in SEQ ID NO:32, and human ANT3 as set forth in SEQ ID NO:33, under conditions and for a time sufficient to permit binding of the agent to said fused ANT polypeptide, wherein the host cell comprises a recombinant expression construct comprising at least one regulated promoter operably linked to a nucleic acid encoding the recombinant ANT fusion protein; and
- (b) detecting binding of said agent to the recombinant ANT fusion protein.

114. (New) The method of claim 113 wherein the host cell is a prokaryotic cell.

115. (New) The method of claim 114 wherein the prokaryotic cell is an *E. coli* cell.

116. (New) The method of claim 113 wherein the host cell is a eukaryotic cell.

117. (New) The method of claim 116 wherein the eukaryotic cell is selected from the group consisting of a yeast cell, an insect cell, and a mammalian cell.

118. (New) The method of claim 117 wherein the insect cell is selected from the group consisting of an Sf9 cell and a *Trichoplusia ni* cell.

119. (New) The method of any one of claims 114-118 wherein the host cell lacks at least one isoform of an endogenous adenine nucleotide translocator.

120. (New) The method of any one of claims 114-118 wherein host cell expression of at least one gene encoding an endogenous adenine nucleotide translocator isoform is substantially impaired.

121. (New) A method for identifying an agent that binds to an adenine nucleotide translocator (ANT) polypeptide, comprising:

- (a) culturing a host cell comprising at least one recombinant expression construct that comprises at least one regulated promoter operably linked to a nucleic acid encoding a recombinant ANT fusion protein to produce a biological sample that comprises said ANT fusion protein, wherein the ANT fusion protein comprises an ANT polypeptide fused to at least one additional polypeptide sequence, wherein the fused ANT polypeptide has a sequence at least 95% identical to an ANT polypeptide selected from the group consisting of human ANT1 as set forth in SEQ ID NO:31, human ANT2 as set forth in SEQ ID NO:32, and human ANT3 as set forth in SEQ ID NO:33;
- (b) contacting a candidate agent with the biological sample of (a) under conditions and for a time sufficient to permit binding of the agent to said ANT fusion protein; and
- (c) detecting binding of said agent to the ANT fusion protein.

122. (New) A method for identifying an agent that interacts with an adenine nucleotide translocator (ANT) polypeptide comprising:

- (a) contacting, in the absence and in the presence of a candidate agent, a biological sample comprising a recombinant ANT fusion protein with a detectable ANT ligand under conditions and for a time sufficient to permit binding of the ANT ligand to the fusion protein, wherein the fusion protein comprises an ANT polypeptide fused to at least one additional polypeptide sequence, wherein said fused ANT polypeptide has a sequence at least 95% identical to an ANT polypeptide selected from the group consisting of (i) human ANT1 as set forth in SEQ ID NO:31; (ii) human ANT2 as set forth in SEQ ID NO:32; and (iii) human ANT3 as set forth in SEQ ID NO:33; and

- (b) comparing binding of the detectable ANT ligand to the ANT fusion protein in the absence of said agent to binding of the detectable ANT ligand to the ANT fusion protein in the presence of said agent, and therefrom identifying an agent that interacts with an ANT polypeptide.

123. (New) An assay plate for high throughput screening of candidate agents that bind to at least one adenine nucleotide translocator (ANT) polypeptide, comprising:

an assay plate having a plurality of wells, each of said wells comprising at least one immobilized recombinant ANT fusion protein that comprises an ANT polypeptide fused to at least one additional polypeptide sequence, wherein said ANT polypeptide comprises an amino acid sequence that is at least 95% identical to that of an ANT polypeptide selected from the group consisting of (i) human ANT1 as set forth in SEQ ID NO:31; (ii) human ANT2 as set forth in SEQ ID NO:32; and (ii) human ANT3 as set forth in SEQ ID NO:33.